
CHAPTER 22: Machine Guarding Requirements

MIOSHA requirements include rules for general machine guarding. These include standards which address the safe maintenance and operation of printing machinery and other equipment.

MIOSHA requires that parts of equipment which transmit power be safeguarded so that employees do not become entangled, pinched, or caught in moving parts. Belts and pulleys, flywheels, chains, sprockets, and gears must all be guarded. These areas are commonly referred to as pinch points.



A pinch point means a point at which it is possible to be caught between the moving parts of a machine, or between the moving and stationary parts of a machine, or between material and any part of a machine. A point of operation refers to the point on a machine where work is performed.

For printing establishments, employees can become exposed when machine panels are removed to service or provide maintenance—then not replaced when the service or maintenance is completed.

MIOSHA requires guarding of these hazards that may exist in printing establishments:

- Feedrolls and rollers;
- Belts and pulleys seven feet or less above a floor or platform;
- A horizontal belt more than seven feet if it is located over a passageway or work area; and
- Gears, sprockets, and chain drives exposed to contact.

If safeguarding one of these hazards requires that you make a guard, the guard should be durable and not result in a new hazard to employees such as burrs or sharp edges.

There are specific requirements for various types of materials and clearances that must be followed when guarding power transmission parts. For example, expanded metal used to guard a moving part less than four inches away from the pinch point cannot have openings larger than one-half inch. The MIOSHA **General Industry Safety Standards – Part 1, General Provisions**, and **Part 7, Guards for Power Transmission** contain a table listing size and clearances for a variety of materials. You may wish to request a copy of these standards prior to constructing a guard required by either of these parts (see Where To Go For Help in the MIOSHA Overview).

The **MIOSHA General Industry Safety Standard – Part 1, General Provisions** also includes specific applications you may need to review.

Section Two—MIOSHA Regulations

Below are some of the MIOSHA safeguarding requirements that would apply in a printing facility:

- Provide training to each newly assigned employee regarding the operating procedures, hazards, and safeguards of the job.

Machine Controls:

- Powered electrical equipment must have an on/off switch;
- When unexpected motion would cause injury, an actuating machine control, except for an emergency device for a powered fixed or transportable machine, must be guarded or located to prevent accidental actuation;
- Unless its function is self-evident, each operating control device shall be identified as to its function; and
- Equipment that is operated in series so that one piece of equipment automatically supplies another shall be interlocked so that when any equipment in the series is stopped for any reason, the initial stopping causes the upstream equipment to stop if continued operation would create a hazard. Reactivation requires a separate positive action by the employee who initiated the stop.

Machine Guards and Devices:

- Two hand-control devices must be the anti-tie down type and located in a manner to prevent bridging. Operation shall require manual activation of both controls until a point is reached in the cycle where the operator cannot remove his or her hands and place them within a pinch point. If repeating would cause an injury to the employee, an anti-repeat device shall be incorporated into the control system;
- Guards shall be secured to the machine, if possible, or to other fixed objects. The guard must not create a hazard in itself;
- A point of operation guard or device must be as prescribed in a specific standard, or, in the absence of a specific standard, must be designed and constructed, when required, to prevent the machine operator exposed to the hazard from having any part of his or her body in the hazardous area during the operating cycle; and
- Blades of a fan, located within seven feet of a floor or working level and used for ventilation or cooling of your employee(s), must be guarded with a firmly affixed or secured guard. Any opening in the guard shall not have more than one of its dimensions more than one inch and the distance to the blade must not be less than that prescribed in Table 1 of **Part 1, General Provisions**.

Air Under Pressure:

- Air pressure at the discharge end of a portable air blow gun or portable air hose must be less than 30 pounds per square inch gauge when dead-ended.